REMARKS

Claims 1-2, 5-10, 32-35 and 47-50 are currently pending in this application, as amended. The Title of the Invention section has been replaced with a Title of the Invention that is more clearly indicative to the invention to which the claims are directed. Claims 3-4, 11-31, 36-46 and 51-59 have been canceled. Claims 1-2, 5-8, 10, 32-35 and 47-50 have been amended to more particularly point out and distinctly claim the invention. Support for the claim amendments can be found in Figs. 2-14 and in the original Specification at pages 36-57, among others. Accordingly, no new matter has been added by the amendment.

Specification

The Examiner has stated that the Title of the Invention is objected to and that a new Title is required that is clearly indicative of the invention to which the claims are directed and in a more concise form.

Accordingly, the Title of the Invention section has been replaced with a Title of the Invention that is more clearly indicative to the invention to which the claims are directed. Applicants respectfully request that the objection to the Title of the Invention has been overcome and should be withdrawn.

Claim Rejections Under 35 U.S.C. § 102(b)

Rejection of Claims 1-2 and 32-33

Claims 1-2 and 32-33 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,956,307 ("Koudo *et al.*," hereinafter, "Koudo"). The Examiner takes the position that Koudo discloses a disk apparatus and an audiovisual data processing apparatus having all of the claimed features.

Withdrawal of the rejections of claims 1-2 and 32-33 is respectfully requested in view of the foregoing amendments and for at least the following reasons.

Present Invention

The present invention, amongst other things, is directed to a disk apparatus including a disk medium capable of recording/playing back data, a buffer memory for temporarily storing audiovisual data capable of dividing into audiovisual frame units, and buffer memory control means for controlling the input/output of the audiovisual data for the buffer memory. The disk apparatus also includes audiovisual frame detection means for detecting audiovisual frame boundaries from the audiovisual data and outputting a frame detection signal, transmitted/received data amount calculation means for calculating an amount of audiovisual data stored in the buffer memory in frame units on the basis of the frame detection signal, frame address management means for performing division management of addresses regarding the audiovisual frame boundaries of the audiovisual data stored in the buffer memory as frame address information in accordance with the frame detection signal, and writing means for writing the audiovisual data on the disk medium in accordance with the frame address information. Thus, the present invention is configured to allow individual audiovisual data, such as moving picture data, to be recorded or played back with a simple configuration in hard disk apparatuses and the like.

Koudo

Koudo discloses a device for reproducing data from disk, like a CD-ROM. A virtual RAM read address generating circuit 41 generates a virtual address on the basis of an output signal of a crystal oscillation circuit 36. The device includes phase comparison circuit 39 which performs a phase comparison with a write address and a spindle control circuit 3 which controls rotation of a disk with reference to outputs of a frequency comparison circuit 38 and the phase comparison circuit 39. Phase error is fed back to a spindle motor in order to prevent linear velocity deviation from occurring in a steady state. A synchronization detecting circuit 11 detects the synchronizing signal recorded in each frame (col. 19, ll. 61-63), but does not detect audiovisual from boundaries of audiovisual data. Koudo discloses frame data that is a CD format for audio use. Disk management information residing in the table of contents region

a

(TOC) is sequentially stored in disk management information storage 49 via a subcode reproduction block 46 (col. 25, ll. 6-8).

Patentability of Claim 1

Claim 1, as amended, recites, *inter alia*:

> audiovisual frame detection means for detecting audiovisual frame boundaries from said audiovisual data and outputting a frame detection signal,
>
> transmitted/received data amount calculation means for calculating an amount of audiovisual data stored in said buffer memory in frame units on the basis of said frame detection signal,
>
> frame address management means for performing division management of addresses regarding said audiovisual frame boundaries of said audiovisual data stored in said buffer memory as frame address information in accordance with said frame detection signal....

Koudo fails to disclose or suggest a disk apparatus including audiovisual frame detection means for detecting audiovisual frame boundaries from said audiovisual data and outputting a frame detection signal, transmitted/received data amount calculation means for calculating an amount of audiovisual data stored in a buffer memory in frame units on the basis of the frame detection signal and frame address management means for performing division management of addresses regarding the audiovisual frame boundaries of the audiovisual data stored in the buffer memory as frame address information in accordance with the frame detection signal, as set forth in claim 1.

The frame disclosed in Koudo is a CD format for audio not frame for audiovisual data, and the synchronization detecting circuit detects the synchronizing signal recorded in each frame, not the audiovisual boundaries of audiovisual data.

A claim is anticipated under 35 U.S.C. § 102 only if each and every element as set forth in the claim is found expressly or inherently described in a single prior art reference and the elements must be arranged as required in the claim. MPEP § 2131.

It is therefore, respectfully submitted, that independent claim 1 is not anticipated by Koudo because Koudo does not disclose or suggest each and every element of claim 1, as amended. Claim 2 depends from amended claim 1. Accordingly, Applicant respectfully requests that the rejection of amended independent claim 1 and dependent claim 2 under 35 U.S.C. § 102(b) be withdrawn.

Patentability of Claim 32

Claim 32, as amended, recites, *inter alia*:

> audiovisual frame detection means for detecting audiovisual frame boundaries from said audiovisual data and for outputting a frame detection signal,
>
> transmitted/received data amount calculation means for calculating an amount of audiovisual data stored in said buffer memory in frame units on the basis of said frame detection signal,
>
> frame address management means for dividing and managing addresses regarding said audiovisual frame boundaries of the audiovisual data stored in said buffer memory as frame address information in accordance with said frame detection signal....

Similar to claim 1 above, Koudo fails to disclose or suggest a audiovisual frame detection means for detecting audiovisual frame boundaries from the audiovisual data and for outputting a frame detection signal, transmitted/received data amount calculation means for calculating an amount of audiovisual data stored in the buffer memory in frame units on the basis of the frame detection signal, and frame address management means for dividing and managing addresses regarding the audiovisual frame boundaries of the audiovisual data stored in the buffer memory as frame address information in accordance with the frame detection signal, as set forth in claim 32.

The frame disclosed in Koudo is a CD format for audio not frame for audiovisual data, and the synchronization detecting circuit detects the synchronizing signal recorded in each frame, not the audiovisual boundaries of audiovisual data.

It is therefore, respectfully submitted, that independent claim 32 is not anticipated by Koudo because Koudo does not disclose or suggest each and every element of claim 32, as

amended. Claim 33 depends from amended claim 32. Accordingly, Applicant respectfully requests that the rejection of amended independent claim 32 and dependent claim 33 under 35 U.S.C. § 102(b) be withdrawn.

Claims 3-4, 12-16, and 37-41

Claims 3-4, 12-16 and 37-41 have been canceled, and therefore, the rejection under 35 U.S.C. § 102(b) of claims 3-4, 12-16 and 37-41 has been effectively rendered moot.

Rejection of Claims 47-48

Claims 47-48 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,737,481 ("Gushima *et al.*," hereinafter, "Gushima"). The Examiner takes the position that Gushima discloses a data apparatus and an audiovisual data processing apparatus having all of the claimed features.

Withdrawal of the rejections of claims 47-48 is respectfully requested in view of the foregoing amendments and for at least the following reasons.

Gushima

Gushima discloses an information recording method for continuously recording information without losing any information even if the apparatus temporarily falls into a recording-disable state because of external shocks and the like. The method includes writing input information into a memory means, such as a buffer memory, once so as to record the information read from the memory means onto a recording medium. A detection of a recording-enable state and a recording-disable state of a recording means is performed during a series of recording operations. Upon detecting the recording-disable state, the recording operation of the recording means and a reading of the information from the memory means are interrupted. After the recording-enable state is detected again, the reading of the information from the memory means and the recording operation are started again. A write rate into the memory means is reduced during a predetermined period after the detection of the recording-disable state. A remaining capacity detector is provided for monitoring the remaining capacity in the buffer

memory and instructing the coder to temporarily reduce the coding rate of the input information when the remaining capacity becomes a predetermined value or less.

Patentability of Claim 47

Claim 47, as amended, recites, *inter alia*:

> a frame detection signal generation step of detecting the audiovisual frame boundaries of said audiovisual data and generating a frame detection signal,
>
> a step of calculating an amount of audiovisual data stored in said buffer memory in frame units on the basis of said frame detection signal,
>
> a step of performing division management of addresses regarding said audiovisual frame boundaries of the audiovisual data stored in said buffer memory as frame address information in accordance with said frame detection signal, and
>
> a step of transmitting said audiovisual data to a disk medium in accordance with management information.

Gushima fails to disclose or suggest an audiovisual control method including a frame detection signal generation step of detecting the audiovisual frame boundaries of audiovisual data and generating a frame detection signal, performing division management of addresses regarding the audiovisual frame boundaries of the audiovisual data stored in the buffer memory as frame address information in accordance with the frame detection signal, and transmitting the audiovisual data to a disk medium in accordance with management information, as set forth in amended claim 47.

Gushima discloses an information recording method for continuously recording information without losing any information even if the apparatus temporarily falls into a recording-disable state. Gushima also discloses a remaining capacity detector for monitoring the remaining capacity in a buffer memory and instructing a coder to temporarily reduce the coding rate of the input information when the remaining capacity becomes a predetermined value or

less. But, Gushima fails to disclose any type of audiovisual frame detection means or circuit, transmitted/received data amount calculation means or circuit or frame address management means or circuit.

It is therefore, respectfully submitted, that independent claim 47 is not anticipated by Gushima because Gushima does not disclose or suggest each and every element of claim 47, as amended. Claim 48 depends from amended claim 47. Accordingly, Applicant respectfully requests that the rejection of amended independent claim 47 and dependent claim 48 under 35 U.S.C. § 102(b) be withdrawn.

Claims 17-31, 42-46 and 52-59

Claims 17-31, 42-46 and 52-59 have been canceled, and therefore, the rejection under 35 U.S.C. § 102(b) of claims 17-31, 42-46 and 52-59 has been effectively rendered moot.

Rejection of Claims 49-50

Claims 49-50 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,923,814 ("Boyce"). The Examiner takes the position that Boyce discloses an audiovisual control method having all of the claimed steps.

Withdrawal of the rejections of claims 49-50 is respectfully requested in view of the foregoing amendments and for at least the following reasons.

Boyce

Boyce discloses methods and apparatuses for converting digital signals having a variable data rate to fixed data rate signals suitable for recording on a tape by a digital video tape recorder ("VTR"). The methods include buffering received variable rate data, measuring the data rate of the received data for a fixed period of time and processing the buffered data to convert the data into a fixed rate data stream. The process is repeated for each of the fixed periods of time. Boyce also discloses methods for increasing the recording time of a digital video tape recorder and for supporting multiple normal play modes of digital VTR operation, e.g., recording modes for recording standard definition television ("SDTV") and high definition

television ("HDTV"). In order to generate fixed data rate signals from variable data rate signals, one or more data padding and/or data reduction techniques are used. The same data reduction techniques used to generate a fixed rate data stream are used to reduce the amount of data required to represent a video frame.

FIG. 9 of Boyce shows an output of a tuner 14 is coupled to an input of a VTR mode control circuit 920, a buffer control circuit 901, a data buffer 902, and a second input of a switch 918. Thus, the video/audio data bit stream output by the tuner 14 is supplied to each of the elements coupled thereto. The buffer control circuit 901 monitors the rate of the data supplied to the data buffer 902 and generates a data rate information signal which is used to control the data buffer output rate and the operation of the data reduction/padding circuit 904. The data buffer 902 is used to temporally store the received signal so that the rate of the received data video/audio data bit stream can be determined and controlled. A data output of the data buffer 902 is coupled to the input of a data reduction/padding circuit 904. The data rate reduction/padding circuit 904 uses the data rate information received from the buffer control circuit 901 to generate a fixed rate data stream from the received video/audio data bit stream which may be of a variable data rate. A fixed rate data output of the data reduction circuit 904 is coupled to the first input of the switch 918. When multiple recording rates less than the maximum data rate are supported by the VTR recording circuit 900, a mode control signal is supplied to the data reduction circuit 904 from the VTR mode control circuit 920 so that the data reduction circuit is informed as to the mode the VTR is operating in so that it can control the data rate to be the fixed rate at which data is to be recorded during the particular mode of VTR operation.

Patentability of Claim 49

Claim 49, as amended, recites, *inter alia*:

> a reading step of reading selected audiovisual data from a disk medium,
>
> a step of temporarily storing said audiovisual data read in audiovisual frame units from said disk medium into a buffer memory, and
>
> a step of generating stream data by selecting stored audiovisual data in audiovisual frame units.

Boyce fails to disclose or suggest an audiovisual control method including temporarily storing audiovisual data read in audiovisual frame units from a disk medium into a buffer memory and generating stream data by selecting stored audiovisual data in audiovisual frame units, as set forth in amended claim 49.

The Boyce methods include buffering received variable rate data, measuring the data rate of the received data for a fixed period of time and processing the buffered data to convert it into a fixed rate data stream. Boyce also discloses methods for increasing the recording time of a digital video tape recorder and for supporting multiple normal play modes of digital VTR operation. But, Boyce does not disclose storing audiovisual data in audiovisual frame units and generating stream data by selecting such stored audiovisual data in audiovisual frame units.

It is therefore, respectfully submitted, that independent claim 49 is not anticipated by Boyce because Boyce does not disclose or suggest each and every element of claim 49, as amended. Claim 50 depends from amended claim 49. Accordingly, Applicant respectfully requests that the rejection of amended independent claim 49 and dependent claim 50 under 35 U.S.C. § 102(b) be withdrawn.

Claim 51

Claim 51 has been canceled, and therefore, the rejection under 35 U.S.C. § 102(b) of claim 51 has been effectively rendered moot.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 5-10 and 34-35 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Koudo in view of Boyce. The Examiner asserts that Koudo teaches a disk apparatus and audiovisual data processing apparatus having a disk medium, an external disk interface, a buffer memory and buffer memory control. The Examiner acknowledges that Koudo fails to disclose playback data selection means for selecting the audiovisual data to be output externally and for selecting the audiovisual data to be transmitted to an external audiovisual

apparatus interface means, reading means for reading the audiovisual data selected and stream data generation means for generating stream data. It is the Examiner's position that Boyce discloses an apparatus for performing video data reduction with a method for playback data selection and that it would have been obvious to modify the apparatus of Koudo to incorporate the playback selection of Boyce.

Withdrawal of the rejections of claims 5-10 and 34-35 is respectfully requested in view of the foregoing amendments and for at least the following reasons.

Patentability of Claim 5

Claim 5, as amended, recites, *inter alia*:

> playback data selection means for selecting said audiovisual data to be output to an external apparatus in audiovisual frame units from among said audiovisual data recorded on said disk medium,
>
> reading means for reading said audiovisual data selected by said playback data selection means from said disk medium,
>
> a buffer memory for temporarily storing audiovisual data in audiovisual frame units read from said disk medium,
>
> buffer memory control means for controlling input/output of said audiovisual data read from said disk medium for said buffer memory, and
>
> stream data selection means for generating stream data by selecting the data stored in said buffer memory in audiovisual frame units.

Koudo fails to disclose or suggest a disk apparatus having playback data selection means for selecting said audiovisual data to be output to an external apparatus in audiovisual frame units from among audiovisual data recorded on a disk medium, reading means for reading the audiovisual data selected by the playback data selection means from the disk medium, and stream data selection means for generating stream data by selecting the data stored in the buffer memory in audiovisual frame units, as set forth in amended claim 5. The frame disclosed in Koudo is a CD format for audio not frame for audiovisual data, and the synchronization detecting circuit detects the synchronizing signal recorded in each frame, not the audiovisual

boundaries of audiovisual data. Boyce fails to compensate for the deficiencies of Koudo. The Boyce methods include buffering received variable rate data, measuring the data rate of the received data for a fixed period of time and processing the buffered data to convert it into a fixed rate data stream. Boyce also discloses methods for increasing the recording time of a digital video tape recorder and for supporting multiple normal play modes of digital VTR operation. But, Boyce does not disclose means for selecting audiovisual data to be output to an external apparatus in audiovisual frame units and means for generating stream data by selecting stored audiovisual data in audiovisual frame units.

To establish *prima facie* obviousness of a claimed invention, all the claimed limitations must be taught or suggested by the prior art. MPEP § 2143.03.

Even if Koudo were modified to include the teachings of Boyce, the modified Koudo device would still not disclose each an every element of claim 5, which includes playback data selection means for selecting the audiovisual data to be output to an external apparatus in audiovisual frame units from among the audiovisual data recorded on a disk medium, reading means for reading the audiovisual data selected by the playback data selection means from the disk medium, and stream data selection means for generating stream data by selecting the data stored in the buffer memory in audiovisual frame units. Thus, all the claimed elements/features of claim 5 are therefore not disclosed by the modified Koudo device. Applicants therefore respectfully submit that claim 5 is not obvious under 35 U.S.C. § 103(a) in view of the combination of Koudo and Boyce, and therefore, Applicants respectfully request that the rejection of claim 5 and dependent claims 6-10 under 35 U.S.C. § 103(a) be withdrawn.

Patentability of Claim 34

Claim 34, as amended, recites, *inter alia*:

> external disk interface means for controlling record/playback of audiovisual data capable of dividing into audiovisual frame units for a disk apparatus,
>
> external audiovisual apparatus interface means for controlling record/playback of said audiovisual data for an audiovisual apparatus,

playback data selection means for selecting said audiovisual data to be transmitted to said external audiovisual apparatus interface means in audiovisual frame units from among said audiovisual data recorded in said disk apparatus,

reading means for reading said audiovisual data selected by said playback data selection means from said disk apparatus to said buffer memory via said external disk interface means,

a buffer memory for temporarily storing said audiovisual data in audiovisual frame units read from said disk medium, disposed between said external disk interface means and said audiovisual apparatus interface means,

buffer memory control means for controlling the input/output of said audiovisual data for said buffer memory, and

stream data selection means for generating stream data by selecting the data stored in said buffer memory in audiovisual frame units.

Similar to claim 5 above, Koudo fails to disclose or suggest an audiovisual data processing apparatus having playback data selection means for selecting audiovisual data to be transmitted to an external audiovisual apparatus interface means in audiovisual frame units from among audiovisual data recorded on a disk medium, reading means for reading the audiovisual data selected by the playback data selection means from the disk apparatus to a buffer memory via the external disk interface means, and stream data selection means for generating stream data by selecting the data stored in the buffer memory in audiovisual frame units, as set forth in amended claim 34.

The frame disclosed in Koudo is a CD format for audio not frame for audiovisual data, and the synchronization detecting circuit detects the synchronizing signal recorded in each frame, not the audiovisual boundaries of audiovisual data. Boyce fails to compensate for the deficiencies of Koudo. The Boyce methods include buffering received variable rate data, measuring the data rate of the received data for a fixed period of time and processing the buffered data to convert it into a fixed rate data stream. Boyce also discloses methods for increasing the recording time of a digital video tape recorder and for supporting multiple normal play modes of digital VTR operation. But, Boyce does not disclose means for selecting audiovisual data to be output to an external apparatus in audiovisual frame units and means for generating stream data by selecting stored audiovisual data in audiovisual frame units.

Even if Koudo were modified to include the teachings of Boyce, the modified Koudo device would still not disclose each an every element of claim 34. All the claimed elements/features of claim 34 are therefore not disclosed by the modified Koudo device. Applicants therefore respectfully submit that claim 34 is not obvious under 35 U.S.C. § 103(a) in view of the combination of Koudo and Boyce, and therefore, Applicants respectfully request that the rejection of claim 34 and dependent claim 35 under 35 U.S.C. § 103(a) be withdrawn.

Claims 11 and 36

Claims 11 and 36 have been canceled, and therefore, the rejection under 35 U.S.C. § 103(a) of claims 11 and 36 has been effectively rendered moot.

CONCLUSION

In view of the foregoing Amendment and remarks, it is respectfully submitted that the present application, including claims 1-2, 5-10, 32-35 and 47-50, is in condition for allowance and such action is respectfully requested.

Respectfully submitted,

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